

Amendment and Response
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Amendment to the Claims:

Please amend the claims to read as follows:

- 1 1. (previously presented) A system comprising:
2 a charge-emission device having an emitter;
3 a controllable current source electrically connected to the emitter
4 of the charge-emission device by an electrical path, the controllable
5 current source supplying to the emitter of the charge-emission device
6 over the electrical path a controlled amount of electrical current that
7 produces a potential difference at the emitter with respect to an electrode
8 to induce the emitter to emit electrical charge; and
9 a current sink connected to the controllable current source for
10 shunting at least a portion of the electrical current to ground upon a
11 detection of a particular charge emission condition.
- 1 2. (canceled)
- 1 3. (previously presented) The system of claim 1, further comprising
2 protection circuitry for detecting the particular charge emission condition
3 and for activating the current sink upon the detection.
- 1 4. (previously presented) The system of claim 1, wherein the particular
2 charge emission condition is indicative of an excessive flow of current
3 from the emitter.
- 1 5. (previously presented) The system of claim 1, wherein the particular
2 charge emission condition is indicative of an excessive rate of change of
3 the current flowing from the emitter.

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- 1 6. (original) The system of claim 1, wherein the current source is
2 adjustable to enable changes to an amount of electrical current being
3 supplied by the controllable current source to the emitter.
- 1 7. (original) The system of claim 1, further comprising a controller
2 directing the controllable current source to provide a predetermined
3 amount of electrical current.
- 1 8. (original) The system of claim 1, wherein the charge-emission device is
2 a device that emits ions.
- 1 9. (original) The system of claim 8, wherein the emitted ions have a
2 positive charge.
- 1 10. (original) The system of claim 1, wherein the charge-emission device is
2 a device that emits electrons.
- 1 11. (original) The system of claim 1, wherein the charge-emission device
2 emits fluid.
- 1 12. (original) The system of claim 1, wherein the charge-emission device is
2 a gated device.
- 1 13. (original) The system of claim 1, wherein the charge-emission device
2 has an array of emitters including the emitter and a second emitter, and
3 the controllable current source provides current to each emitter in the
4 emitter array.
- 1 14. (original) The system of claim 1, wherein the controllable current
2 source is a first current source, the charge-emission device has an array
3 of emitters including a first emitter and a second emitter, and further

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4 comprising a second controllable current source, the first current source
5 supplying a first controlled amount of electrical current to the first
6 emitter and the second current source supplying a second controlled
7 amount of current to the second emitter.

1 15. (currently amended) A system comprising:

2 a micro-fabricated charge-emission device having an emitter;
3 controllable means for supplying to the emitter of the charge-
4 emission device a controlled amount of electrical current that produces a
5 potential difference at the emitter with respect to an electrode to induce
6 the emitter to emit electrical charge; and

7 means, electrically connected to an electrical path between the
8 supplying means and the emitter, for shunting at least a portion of the
9 supplied electrical current to ground upon a detection of a particular
10 charge emission condition.

1 16. (original) The system of claim 15, further comprising means for
2 signaling the supplying means to supply the controlled amount of
3 electrical current.

1 17. (original) The system of claim 15, further comprising means for
2 adjusting the controlled amount of electrical current supplied to the
3 emitter.

1 18. (canceled)

1 19. (original) The system of claim 15, further comprising means for
2 detecting a particular charge emission condition.

1 20. (previously presented) A method of controlling an amount of charge
2 emitted by a charge-emission device, the method comprising:

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3 supplying a controlled amount of current from a controllable
4 current source to an emitter of a charge-emission device over an
5 electrical path;

6 emitting charge from the emitter of the charge-emission device in
7 response to the current received from the controllable current source;
8 and

9 shunting the current supplied by the controlled current source to
10 ground upon a detection of a particular charge emission condition.

1 21. (original) The method of claim 20, further comprising adjusting the
2 amount of electrical current supplied to the emitter by the controlled
3 current source.

1 22. (canceled).

1 23. (previously presented) The method of claim 20, wherein shunting the
2 supplied current includes detecting an excessive rate of change in an
3 amount of charge being emitted by the emitter.

1 24. (previously presented) The method of claim 20, wherein shunting the
2 supplied electrical current includes detecting an excessive amount of
3 charge being emitted by the emitter.

1 25. (previously presented) A system comprising:
2 a charge-emission device having an emitter and a gate electrode;
3 and
4 a controllable current source electrically connected to the emitter
5 of the charge-emission device by an electrical path over which the
6 controllable current source supplies a controlled amount of electrical
7 current to the emitter, the supplied amount of electrical current

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8 producing a voltage difference between the emitter and the gate electrode
9 of a magnitude sufficient to cause the emitter to emit electrical charge
10 without having to use a voltage supply to apply a voltage bias to the gate
11 electrode in order to achieve the voltage difference that causes emission
12 of the electrical charge.

1 26. (previously presented) The system of claim 25, wherein the charge-
2 emission device is micro-fabricated and the gate electrode is integrated
3 with the emitter in a micro-fabricated structure.

1 27. (previously presented) The system of claim 25, further comprising
2 means for signaling the current source to supply the controlled amount
3 of electrical current.

1 28. (previously presented) The system of claim 25, further comprising
2 means for adjusting the controlled amount of electrical current supplied
3 to the emitter.

1 29. (previously presented) The system of claim 25, further comprising a
2 current sink connected to the controllable current source for shunting at
3 least a portion of the electrical current to ground upon a detection of a
4 particular charge emission condition.

1 30. (previously presented) The system of claim 29, further comprising
2 protection circuitry for detecting the particular charge emission condition
3 and for activating the current sink upon the detection.

1 31. (previously presented) The system of claim 29, wherein the particular
2 charge emission condition is indicative of an excessive flow of current
3 from the emitter.

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1 32. (previously presented) The system of claim 25, wherein the charge-
2 emission device has an array of emitters including the emitter and a
3 second emitter, and the controllable current source provides current to
4 each emitter in the emitter array.

1 33. (previously presented) The system of claim 25, wherein the controllable
2 current source is a first current source, the charge-emission device has
3 an array of emitters including a first emitter and a second emitter, and
4 further comprising a second controllable current source, the first current
5 source supplying a first controlled amount of electrical current to the
6 first emitter and the second current source supplying a second controlled
7 amount of current to the second emitter.

1 34. (previously presented) A method of controlling an amount of charge
2 emitted by a charge-emission device having an emitter and a gate
3 electrode, the method comprising:

4 supplying a controlled amount of current from a controllable
5 current source to the emitter of the charge-emission device over an
6 electrical path; and

7 producing, by the controlled amount of current, a voltage
8 difference between the emitter and the gate electrode of a magnitude
9 sufficient to cause the emitter to emit electrical charge without having to
10 use a voltage supply to apply a voltage bias to the gate electrode in order
11 to achieve the voltage difference that causes emission of the electrical
12 charge.

1 35. (previously presented) The method of claim 34, further comprising
2 adjusting the amount of electrical current supplied to the emitter by the
3 controlled current source.

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- 1 36. (previously presented). The method of claim 34, further comprising
2 shunting the current supplied by the controlled current source to ground
3 upon a detection of a particular charge emission condition.
- 1 37. (previously presented) The method of claim 36, wherein shunting the
2 supplied current includes detecting an excessive rate of change in an
3 amount of charge being emitted by the emitter.
- 1 38. (previously presented) The method of claim 36, wherein shunting the
2 supplied electrical current includes detecting an excessive amount of
3 charge being emitted by the emitter.